## SEQUENCE LISTING

- <110> BIOAXONE THERAPEUTIQUE INC.
  - MCKERRACHER, LISA

LASKO, DANA

- <120> COMPOSITIONS AND METHODS FOR TREATING TUMOR SPREADING
- <130> 16627-2PCT
- <150> US 10/902,879
- <151> 2004-08-02
- <150> US 60/506,162
- <151> 2003-09-29
- <160> 59
- <170> PatentIn version 3.1
- <210> 1
  - <211> 27
  - .<212> DNA
  - <213> Artificial Sequence
  - <220>
  - <223> Oligonucleotide used to remove the stop codon from ADP-ribosyl tr ansferase C3 (Clostridium botulinum) cDNA.

<400> 1

gaattettta ggattgatag ctgtgcc

27

<210> 2

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used to remove the stop codon from ADP-ribosyl tr ansferase C3 (Clostridium botulinum) cDNA.

<400> 2

ggtggcgacc atcctccaaa a

. 21

<210> 3

<211> 888

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APL: includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1)..(888)

<223>

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Gly	Ser	Ser	Arg	Val	Asp	Leu	Gln	Ala	Cys	Asn	Ala	Tyr	Ser	Ile	Asn	
1			•	5					10					15		
caa	aag	gct	tat	tca	aat	act	tac	cag	gag	ttt	act	aat	att	gat	caa	96
Gln	Lys	Ala	Tyr	Ser	Asn	Thr	Tyr	Gln	Glu	Phe	Thr	Asn	Ile	Asp	Gln	
			20					25					30			
gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	144
Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	Lys	Lys	Tyr	Gly	Leu	Ser	Lys	
		35					40					45				
			•													
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	192
Ser	Glu	Lys	Glu	Ala	Ile	Val	Ser	Tyr	Thr	Гуз	Ser	Ala	Ser	Glu	Ile	
	50					55					60					
aat	gga	aag	cta	aga	caa	aat	aag	gga	gtt	atc	aat	gga	ttt	cct	tca	240
Asn	Gly	Lys	Leu	Arg	Gln	Asn	Lys	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	
65					70					75					80	
aat	tta	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	288
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Lys	Ser	Phe	Asn	Lys	Met	
				85					90					95		
				-												
													•			

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys	Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
			100					105			٠		110			
tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	384
Leu	Gly	Thr	Glu	Phe	Gln	Asn	Thr	Leu	Leu	Asn	Ser	Asn	Gly	Thr	Ile	
		115					120					125				
															•	
aat	aaa	acg	gct	ttt	gaa	aag	gct	aaa	gct	aag	ttt	tta	aat	aaa	gat	432
Asn	Lys	Thr	Ala	Phe	Glu	Lys	Ala	Lys	Ala	Lys	Phe	Leu	Asn	Lys	Asp	
	13.0					135			•	•	140					
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtc	tct	caa	480
Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	
145					150					155					160	
								•								
ttt	gca	gga	aga	cca	att	att	aca	caa	ttt	aaa	gta	gca	aaa	ggc	tca	528
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	Gln	Phe	Lys	Val	Ala	Lys	Gly	Ser	
				165					170					175		
aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu	
			180					185					190			
																•
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg	624
			Pro											-	_	
		195					200				_	205				
						•		-								
tct	tct	gat	ggt	aaa	caa	ata	ata	att	aca	qca	aca	ato	ato	gac	aca	672
			Gly		•							_	_			

210 215 220

gct atc aat cct aaa gaa ttc gtg atg gaa tcc cgc aaa cgc gca agg 720
Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg
225 230 235 240

cag aca tac acc cgg tac cag act cta gag cta gag aag gag ttt cac 768

Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His

245 250 255

ttc aat cgc tac ttg acc cgt cgg cga agg atc gag atc gcc cac gcc 816

Phe Asn Arg Tyr Leu Thr Arg Arg Arg Ile Glu Ile Ala His Ala

260 265 270

ctg tgc ctc acg gag cgc cag ata aag att tgg ttc cag aat cgg cgc 864
.
Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg
275 280 285

atg aag tgg aag aag gag aac tga 888
Met Lys Trp Lys Lys Glu Asn
290 295

<210> 4

<211> 295

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT: includes ADP-ribosyl transferase C3 (Clostrid
 ium botulinum) and Antennapedia sequence.

<400> 4

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr

210 215 220

Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg
225 230 235 240

Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His
245 250 255

Phe Asn Arg Tyr Leu Thr Arg Arg Arg Ile Glu Ile Ala His Ala
260 265 270

Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg
275 280 285

Met Lys Trp Lys Lys Glu Asn 290 295

<210> 5

<211> 774

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APS: Includes ADP-ribosyl transferase C3 (Clostrid
 ium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1)..(774)

20

<223>

<400> 5

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48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

30

25

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

aat	tta	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	288
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Lys	Ser	Phe	Asn	ьys	Met	
				85					90					95		
			•													
aag	acc	cct	gaa	aat	att	atg	tta	ttt	aga	ggc	gac	gac	cct	gct	tat	336
Lys	Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
			100					105					110			
																-
tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	384
Leu	Gly	Thr	Glu	Phe	Gln	Asn	Thr	Leu	Leu	Asn	Ser	Asn	Gly	Thr	Ile	
		115					120					125				
					•											
aat	aaa	acg	gct	ttt	gaa	aag	gct	aaa	gct	aag	ttt	tta	aat	aaa	gat	432
Asn	Lys	Thr	Ala	Phe	Glu	гÀа	Ala	Lys	Ala	Lys	Phe	Leu	Asn	Lys	Asp	
	130				•	135					140					
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtc	tct	caa	480
Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	
145					150				•	155					160	
ttt	gca	gga	aga	cca	att	att	aca	caa	ttt	aaa	gta	gca	aaa	ggc	tca	528
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	Gln	Phe	Lys	Val	Ala	Lys	Gly	Ser	•
				165					170					175		
aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu	
			180					185					190	•		

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu  195  200  205  tet tet gat ggt aaa caa ata ata ata aca gca aca atg atg ggc aca  67	
tet tet gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 67	
	12
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr	
210 215 220	
•	
gct atc aat cct aaa gaa ttc cgc cag atc aag att tgg ttc cag aat 72	30
Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn	
225 230 235 240	
cgt cgc atg aag tgg aag aag gtc gac tcg agc ggc cgc atc gtg act 76	58
Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr	
245 250 255	
gac tga 7'	74

<210> - 6

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APS: Includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and Antennapedia sequence.

<400> 6

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 10 15

. Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70

75

80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn 225 230 235 240

Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr

245 250 255

Asp

<210> 7

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the amplification of Antennapedia sequenc e

<400> 7

gaatcccgca aacgcgcaag gcag

24

<210> 8

<211> 27

<212> DNA

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<213> Artificial Sequence
<220>
<223> Oligonucleotide used in the amplification of Antennapedia sequenc
<400> 8
                                                                 27
teagttetee ttetteeact teatgeg
<210> 9
<211> 54
<212> DNA
<213> Artificial Sequence
<220>
<223> Oligonucleotide used in the cloning of sequences from Antennapedi ,
       а
<400> 9
aattccgcca gatcaagatt tggttccaga atcgtcgcat gaagtggaag aagg
                                                                 54
<210> 10
<211> 54
<212> DNA
<213> Artificial Sequence
<220>
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<223> Oligonucleotide used in the cloning of sequences from Antennapedi <400> 10 54 . ggcggtctag ttctaaacca agctcttagc agcgtagttc accttcttcc agct <210> 11 <211> 26 <212> DNA <213> Artificial Sequence <220> <223> Oligonucleotide used inthe amplification of a sequence correspond ing to amino acid 27-72 of HIV-1 Tat <400> 11 26 gaatccaagc atccaggaag tcagcc <210> 12 <211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used inthe amplification of a sequence correspond ing to amino acid 27-72 of HIV-1 Tat

<400> 12

accagccacc accttctgat a

21

<210> 13

<211> 876 ·

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and HIV-1 Tat sequence.

<220>

<221> CDS

<222> (1)..(876)

<223>

<400> 13

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

48

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20 25 .30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144

Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	ГÀЗ	Lys	Tyr	Gly	Leu	Ser	ra:	
		35					40					45				
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	192
Ser	Glu	ГЛа	Glu	Ala	Ile	Val	Ser	Tyr	Thr	Lys	Ser	Ala	Ser	Glu	Ile	
	50					55		•			60					
aat	gga	aag	cta	aga	caa	aat	aag	gga	gtt	atc	aat	gga	ttt	cct	tca	240
Asn	Gly	Lys	Leu	Arg	Gln	Asn	Lys	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	
65					70					75					80	
aat	tta	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	288
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Lys	Ser	Phe	Asn	Lys	Met	
				85					90	,				95		
aag	acc	cct	gaa	aat	att	atg	tta	ttt	aga	ggc	gac	gac	cct	gct	tat	336
Lys	Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
			100					105					110			
						•										
tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	384
Leu	Gly	Thr	Glu	Phe	Gln	Asn	Thr	Leu	Leu	Asn	Ser	Asn	Gly	Thr	Ile	
		115					120					125				
aat	aaa	acg	gct	ttt	gaa	aag	gct	aaa	gct	aag	ttt	tta	aat	aaa	gat	432
Asn	Lys	Thr	Ala	Phe	Glu	Lys	Ala	Lys	Ala	Lys	Phe	Leu	Asn	Lys	Asp	
	130			•		135					140					
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtc	tct	caa	480
Arg	Leu	Glu	Tvr	Glv	Tvr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	

145					150					155					160		
ttt	gca	gga	aga	cca	att	att	aca	caa	ttt	aaa	gta	gca	aaa	ggc	tca		528
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	·Gln	Phe	Lys	Val	Ala	Lys	Gly	Ser		
i		_	_	165					170					175			
aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa		576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu		
			180					185					190				
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg		624
Met	Leu	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu		
		195					200					205					•
														•			
tct	tct	gat	ggt	aaa	caa	ata	ata	att	aca	gca	aca	atg	atg	ggc	aca		672
Ser	Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr		
	210					215					220						
gct	atc	aat	cct	aaạ	gaa	ttc	aag	cat	cca	gga	agt	cag	cct	aaa	act		720
Ala	Ile	Asn	Pro	Ьуs	Glu	Phe	Lys	His	Pro	Gly	Ser	Gln	Pro	r Lys	Thr		
225					230					235					240		
gct	tgt	acc	aat	tgc	tat	tgt	aaa	aag	tgt	tgc	ttt	cat	tgo	caa	gtt		768
Ala	Cys	Thr	Asn	Cys	Tyr	Cys	Lys	Lys	Сув	Cys	Phe	His	Cys	Gln	Val		
				245					250					255			
tgt	ttc	ata	aca	aaa	gcc	tta	ggc	ato	tcc	tat	gga	agg	aag	cgg	aga	٠	816
Cys	Phe	Ile	Thr	Lys	Ala	Leu	Gly	Ile	Ser	Tyr	Gly	Arg	Lys	Arg	Arg	_	
			260	ı				265	i				270	)		•	

cag cga cga aga gct cat cag aac agt cag act cat caa gct tct cta 864
Gln Arg Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu

275 280 285

tca aag cag taa 876

Ser Lys Gln

290

<210> 14

<211> 291

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and HIV-1 Tat sequence.

<400> 14

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 220

Ala Ile Asn Pro Lys Glu Phe Lys His Pro Gly Ser Gln Pro Lys Thr 225 230 235 240

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val
245 250 255

Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Arg Arg
260 265 270

Gln Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu
275 280 285

Ser Lys Gln

290

<210> 15

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 15

aattctatgg tcgtaaaaaa cgtcgtcaac gtcgtcgtg

39

<210> 16

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 16

gataccagca ttttttgcag cagttgcagc agcacagct

39

<210> 17

<211> 756

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and HIV-1 Tat sequence.

<220>

<221> CDS

<222> (1)..(756)

<223>

<400> 17

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn 15

. 5 1 10

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

> 20 30 25

gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga <sup>.</sup>	cta	agc	aaa	144
Ala	Lys <sub>.</sub>	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	Lys	Lys	Tyr	Gly	Leu	Ser	Lỳs	
		35					40					45				
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	192
Ser	Glu	ьуs	Glu	Ala	Ile	Val	Ser	Tyr	Thr	ГÀЗ	Ser	Ala	Ser	Glu	Ile	
	50					55					60					
aat	gga	aag	cta	aga	çaa	aat	aag	gga	gtt	atc	aat	gga	ttt	cct	tca ·	240
Asn	Gly	Гув	Leu	Arg	Gln	Asn	Lys	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	
65					70					75					80	
							•									
aat	tta ·	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	288
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Lys	Ser	Phe	Asn	Lys	Met	
				85					90		•	-		95		
aag	acc	cct	gaa	aat	att	atg	tta	ttt	aga	ggc	gac	gac	cct	gct	tat	336
Lys	Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
			100					105					110			
tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	384
Leu	Gly	Thr	Glu	Phe	Gln	Asn	Thr	Leu	Leu	Asn	Ser	Asn	Gly	Thr	Ile	
		115					120					125			•	
	aaa														_	432
	ГÀ2	Thr	Ala	Phe	Glu		Ala	Lys	Ala	Lys		Leu	Asn	Lys	Asp	
	130		•			135					140					
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtc	tct	caa	480

Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	
145					150					155					160	
ttt	gca	gga	aga	cca	att	att	aca	caa	ttt	aaa	gta	gca	aaa	ggc	tca	528
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	Gln	Phe	Lys	Val	Ala	Lys	Gly	Ser	
				165					170					175		
٠																
aag	gca	gga	tat	att <sub>.</sub>	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	qaA	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu	
			180	•			•	185					190			
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg	624
Met	Leu	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu	
		195					200					205				
															•	
tct	tct	gat	ggt	aaa	caa	ata	ata	att	aca	gca	aca	atg	atg	ggc	aca	672
Ser	Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr	
	210					215		·			220				•	
gct	atc	aat	cct	aaa	gaa	ttc	tat	ggt	gát	aaa	aaa	cgt	cgt	caa	cgt	720
Ala	Ile	Asn	Pro	Lys	Glu	Phe	Tyr	Gly	Ala	Lys	Lys	Arg	Arg	Gln	Arg	
225					230					235		-			240 ·	
cgt	cgt	gtc	gac	tcg	agc	ggc	ccg	cat	cgt	gac	tga		•			756
Arg	Arg	Val	Asp	Ser	Ser	Gly	Pro	His	Arg	Asp						
				245					250							

<210> 18

<211> 251

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3 (Clostrid ium botulinum) and HIV-1 Tat sequence.

<400> 18

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 . 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu

195 . 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Tyr Gly Ala Lys Lys Arg Arg Gln Arg
225 230 235 240

Arg Arg Val Asp Ser Ser Gly Pro His Arg Asp

245 250

<210> 19

<211> 1413

<212> DNA

<213> Artificial Sequence

<220>

<223> Includes GST sequences, ADP-ribosyl transferase C3 (C. botulinum
) sequence and a random basic amino acid sequence.

<220>

<221> CDS

<222> (1)..(1413)

<223>

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Met	Ser	Pro	Ile	Leu	Gly	Tyr	Trp	Lys	Ile	Lys	Gly	Leu	Val	Gln	Pro		
1				5					10					15	-		
			•		•												
act	cga	ctt	ctt	ttg	gaa	tat	ctt	gaa	gaa	aaa	tat	gaa	gag	cat	ttg	96	
Thr	Arg	Leu	Leu	Leu	Glu	Tyr	Leu	Glu	Glu	Lys	Tyr	Glu	Glu	His	Leu	•	
			20					25					30				
tat	gag	cgc	gat	gaa	ggt	gat	aaa	tgg	cga	aac	aaa	aag	ttt	gaa	ttg	144	
Tyr	Glu	Arg	Asp	Glu	Gly	Asp	Lys	Trp	Arg	Asn	Lys	Lys	Phe	Glu	Leu		
		35					40					45					
ggt	ttg	gag	ttt	ccc	aat	ctt	cct	tat	tat	att	gat	ggt	gat	gtt	aaa	192	
Gly	Leu	Glu	Phe	Pro	Asn	Leu	Pro	Tyr	Tyr	Ile	Asp	Gly	qaA	Val	Lys		
	50					55					60						
						•									•		
tta	aca	cag	tct	atg	gcc	atc	ata	cgt	tat	ata	gct	gac	aag	cac	aac	240	
Leu	Thr	Gln	Ser	Met	Ala	Ile	Ile	Arg	Tyr	Ile	Ala	Asp	Lys	His	Asn		
65					70					75					80		
														•			
atg	ttg	ggt	ggt	tgt	cca	aaa	gag	cgt	gca	gag	att	tca	atg	ctt	gaa	288	
		Gly															
				85		_			90					95			
qqa	qca	gtt	tta	gat	att	aga	tac	gat	qtt	tca	aga	att	qca	tat	agt	336	
		77.7									71	T1.	77-	(Th. eas.	G		

100 105 110

aaa	gac	ttt	gaa	act	ctc	aaa	gtt.	gat	ttt	ctt	agc	aag	cta	cct	gaa	384
Lys	Asp	Phe	Glu	Thr	Leu	ьуs	Val	qaA	Phe	Leu	Ser	Lys	Leu	Pro	Glu	
		115					120					125				
atg	ctg	aaa	atg	ttc	gaa	gat	cgt	tta	tgt	cat	aaa	aca	tat	tta	aat	432
Met	Leu	Lys	Met	Phe	Glu	Asp	Arg	Leu	Cys	His	Lys	Thr	Tyr	Leu	Asn	
	130					135	•				140					
ggt	gat	cat	gta	acc	cat	cct	gac	ttc	atg	ttg	tat	gac	gct	ctt	gat	480
Gly	Asp	His	Val	Thr	His	Pro	Asp	Phe	Met	Leu	Tyr	Asp	Ala	Leu	Asp	
145					150					155					160	
	•															
gtt	gtt	tta	tac	atg	gac	cca	atg	tgc	ctg	gat	gcg	ttc	cca	aaa	tta	. 528
Val	Val	Leu	Tyr	Met	Asp	Pro	Met	Cys	Leu	Asp	Ala	Phe	Pro	Lys	Leu	
	•			165					170					175		
						•									•	
gtt	tgt	ttt	aaa	aaa	cgt	att	gaa	gct	atc	cca	caa	att	gat	aag	tac	576
Val	Cys	Phe	īvs	T	_											
				гÀг	Arg	Ile	Glu	Ala	Ile	Pro	Gln	Ile	Asp	Lys	Tyr	
			180	пàв	Arg	Ile	Glu	Ala 185	Ile	Pro	Gln	Ile	Asp 190	Lys	Tyr	
			-	пÀв	Arg	Ile	Glu		Ile	Pro	Gln	Ile		Lys	Tyr	
ttg	aaa	teç	-					185					190			624
_		·	180	aag	tat	ata	gca	185 tgg	cct	ttg	cag	ggc	190 tgg	caa	gcc	624
_		·	180 agc	aag	tat	ata	gca	185 tgg	cct	ttg	cag	ggc	190 tgg	caa	gcc	624
_		Ser	180 agc	aag	tat	ata	gca Ala	185 tgg	cct	ttg	cag	gly	190 tgg	caa	gcc	624
Leu	Lys	Ser 195	180 agc	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu	cag Gln	ggc Gly 205	190 tgg Trp	caa Gln	gcc Ala	62 <b>4</b> 672
Leu	Lys	ser 195 ggt	180 agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200	tgg Trp	cct Pro	ttg Leu tcg	cag Gln gat	ggc Gly 205	tgg Trp	caa Gln ccg	gcc Ala	
Leu	Lys	ser 195 ggt	agc Ser	aag Lys	tat Tyr	ata Ile	gca Ala 200 cct	tgg Trp	cct Pro	ttg Leu tcg	cag Gln gat	ggc Gly 205	tgg Trp	caa Gln ccg	gcc Ala	

gga	tcc	tct	aga	gtc	gac	ctg	cag	gca	tgc	aat	ġct	tat	tcc	att	aat	720
Gly	Ser	Ser	Arg	Val	Asp	Leu	Gln	Ala	Cys	Asn	Ala	Tyr	Ser	Ile	Asn	
225					230					235					240	
caa	aag	gct	tat	tca	aat	act	tac	cag	gag	ttt	act	aat	att	gat	caa	768
Gln	Lys	Ala	Tyr	Ser	Asn	Thr	Tyr	Gln	Glu	Phe	Thr	Asn	Ile	Asp	Gln	
				245					250					255		
											•					
gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	8:16
Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	Lys	Lys	Tyr	Gly	Leu	Ser	Lys	
			260		• .			265		1			270			
							-									
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	864
Ser	Glu	ГÀЗ	Glu	Ala	Ile	Val	Ser	Tyr	Thr	ГЛЗ	Ser	Ala	Ser	Glu	Ile	
		275					280					285				
aat	gga	aag	cta	aga	caa	àat	aag	gga	gtt	atc	aat	gga	ttt	cct	tca	912
Asn	Gly	Lys	Leu	Arg	Gln	Asn	ГÀЗ	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	
	290					295					300					
			,													
aat	tta	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	960
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Ьув	Ser	Phe	Asn	Lys	Met	
305					310					315					320	
			gaa								_			_		1008
Lys	Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
				325					330					335		

tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	1	.056
Leu	Gly	Thr	Glu	Phe	Gln	Asn	Thr	Leu	Leu	Asn	Ser	Asn	Gly	Thr	Ile		
			340					345					350				
aat	aaa	acg	gct	ttt	gaa	aag	gct	aaa	gct	aag	ttt	tta	aat	aaa	gat	1	104
Asn	Lys	Thr	Ala	Phe	Glu	Lys	Ala	Lys	Ala	Lys	Phe	Leu	Asn	Lys	Asp		
		355					360					365					
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtt	tct	caa	1	L152
Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	·Gln		
	370					375	,				380						•
								•					•				
ttt	gca	gga	aga	cca	att	att	aca	aaa	ttt	aaa	gta	gca	aaa	. ggc	tca	.1	1200
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	ГЛS	Phe	ГАВ	Val	Ala	Lys	Gly	Ser		
385					390					395					400		
			tat													-	1248
ГЛЗ	Ala	Gly	Tyr		Asp	Pro	Ile	Ser		Phe	Gln	Gly	Gln	Leu	Glu		
				405					410		•			415	•		
			cct													-	1296
Met	Leu	Leu	Pro	Arg	His	Ser	Thr		His	IIe	Asp	Asp		Arg	ьеи		
			420					425					430				
<b>.</b>	£	<b>t</b> -				-4-				~		- <b>-</b> -	^+~	~~~	202		1344
		_	ggt													•	1344
ser	ser	435	Gly	пув	GIII		440	116	1111	AIG	THE	445		GIY	1111		
		*33			•		33U					443					
~~+	a+-	224	cct	227	us s	++-	acte	200	222	Caa	242	245	225		ana		1392
gct	atc	aat	CCE.	adā	yaa	LLC	aya	ayy	add	caa	aya	aya	aad	aya	aya	•	1376

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg

450

455

460

ctg cag gcg gcc gca tcg tga

1413

Leu Gln Ala Ala Ala Ser

465

470

<210> 20

<211> 470

<212> PRT

<213> Artificial Sequence

<220>

<223> Includes GST sequences, ADP-ribosyl transferase C3 (C. botulinum
) sequence and a random basic amino acid sequence.

· <400> 20

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro

1 5 10 15

Thr Arg Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu

35

40

45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser

100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu

115 . 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn 130 135 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu

165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr

180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
195 200 205

Thr Phe Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg
210 215 220

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn 225 230 235 240

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
245 250 255

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
260 265 270

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
275 280 285 .

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
290 295 300

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met 305 310 315 320

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

325
330
335

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

340 345 350

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

355
360
365

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
370 375 380

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

385 390 395 400

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
405 410 415

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
420 425 430

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
435 440 445

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg 450 455 460

Leu Gln Ala Ala Ala Ser 465 470

<210> 21

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Random basic amino acid sequence of C3Basic1

<400> 21

Lys Arg Arg Arg Arg Pro Lys Lys Arg Arg Arg Ala Lys Arg Arg

1 5 10 15

<210> 22

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic1

<400> 22

aagagaaggc gaagaagacc taagaagaga cgaagggcga agaggaga

48

<210> 23

<211> 48

<212> DNA.

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic1

<400> 23

ttetetteeg ettettetgg attettetet getteeeget teteetet

48

<210> 24

<211> 792

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic1: includes ADP-ribosyl transferase C3 (Clost ridium botulinum) sequence and a sequence encoding a random basic amino acid sequence and a Histidine tag.

<220>

<221> CDS

<222> (1)..(792)

5

<223>

<400> 24

1

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Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

10

15

caa aag got tat toa aat act tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

20 25 30

gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	144
Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	Lys	Lys	Tyr	Gly	Leu	Ser	Lys	•
		35					40					45				
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	192
_	<b>a</b> 1	<b>-</b>	<b>6</b> 7	27-	Ile		Com	TT+ row	mb ze	Taro	Cor	λla	Ser	Glu	Tle	
ser		ьув	GIU	Ала	тте		ser	тўт	TIII	цуѕ	60	AIG	Der	GIU	110	
	50				•	55					80					
•						+		~~~	att	ata	22t	aas	+++	cct	tca	240
					caa											2.10
	GTA	гув	ьеп	Arg	Gln	Asn	гуз	GTĀ	Val	75	ASII	GIŞ	FHE	PIO	80	
65					70		•			/5					80	
				-									224	222	ata	288
					gtt											200
Asn	Leu	Ile	Гуз		Val	GIU	ьeu	ьeu		ьув	ser	Pne	Asn		Mec	
				85					90					95		
															<b>L_L</b>	226
_					att											336
Lys	Thr	Pro			Ile	Met	Leu			GTÀ	Asp	Asp			. ıyr	
			100				•	105					110			
														•		
					caa					÷						384
Leu	Gly	Thr	Glu	Phe	Gln	. Asn	Thr	Leu	Leu	. Asn	. Ser			Thr	lle	
	-	115					120	)				125				
					gaa			•								432
Asn	Lys	Thr	Ala	Phe	Glu	Lys	Ala	Lys	Ala	. Lys			. Asr	ı Lye	Asp	
	130	)				135					140	)				

aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtt	tct	caa	480
Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	
145					150					155					160	
ttt	gca	gga	aga	cca	att	att	aca	aaa	ttt	aaa	gta	gca	aaa	ggc	tca	528
Phe	Ala	Gly	Arg	Pro	Ile	Ile	Thr	Lys	Phe	Lys	Val	Ala	Lys	Gly	Ser	•
				165					170					175		•
aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu	
			180					185					190			
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg	624
Met	Leu	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu	
		195					200					205				
tct	tct	gat	ggt	äaa	caa	ata	ata	att	aca	gca	aca	atg	atg	ggc	aca	672
Ser	Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr	
	210					215				٠	220					
		•							,							
gct	atc	aat	cct	aaa	gaa	ttc	aag	aga	agg	cga	aga	aga	cct	aag	aag	720
Ala	Ile	Asn	Pro	Lys	Glu	Phe	Lys	Arg	Arg	Arg	Arg	Arg	Pro	Lys	Lys	
225					230					235		-			240	
						aga										768
Arg	Arg	Arg	Ala		Arg	Arg	His	His		His	His	His	Val		Ser	
				245					250		-			255		

agc ggc cgc atc gtg act gac tga

792

Ser Gly Arg Ile Val Thr Asp

260

<210> 25

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3Basicl: includes ADP-ribosyl transferase C3 (Clost ridium botulinum) sequence and a sequence encoding a random basic amino acid sequence and a Histidine tag.

<400> 25

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met 85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp 130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Pro Lys Lys
225 230 230 235 240

Arg Arg Arg Ala Lys Arg His His His His His His Val Asp Ser

Ser Gly Arg Ile Val Thr Asp

<210> 26

<211> 13

<212> PRT

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<213> Artificial Sequence
<220>
<223> Random amino acid sequence of C3Basic2
<400> 26
Lys Arg Arg Arg Lys Lys Arg Arg Gln Arg Arg Arg
                                   10
              5
<210> 27
<211> 39
<212> DNA
<213> Artificial Sequence
<220>
<223> Oligonucleotide used in the cloning of a random basic amino acid
       sequence in C3Basic2
 <400> 27
                                                                     39
aagcgtcgac gtagaaagaa acgtagacag cgtagacgt
 <210> 28
 <211> 39
 <212> DNA
 <213> Artificial Sequence
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<220> .

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic2

<400> 28

ttcgcagctg catctttctt tgcatctgtc gcatctgca

39

<210> 29

<211> 783

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic2: includes sequences from ADP-ribosyl-transf erase C3 (Clostridium botulinum) and a sequence encoding a random basic amino acid sequence and a histidine tag.

.<220>

<221> CDS

<222> (1)..(783)

<223>

<400> 29

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

10

15

caa	aag	gct	tat	tca	aat	act	tac	cag	gag	ttt	act	aat	att	gat	caa	96
Gln	Lys	Ala	Tyr	Ser	Asn	Thr	Tyr	Gln	Glu	Phe	Thr	Asn	Ile	Asp	Gln	
			20					25					30			
gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	144
Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	ГÀЗ	Lys	Tyr	Gly	Leu	Ser	ŗĀs	
		35					40					45				
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	ågt	gaa	ata	192
Ser	Glu	ГÀЗ	Glu	Ala	Ile	Val	Ser	Tyr	Thr	Lys	Ser	Ala	Ser	Glu	Ile	
	50					55					60					
						-					•			•		
					caa											240
	Gly	Lys	Leu	Arg	Gln <sub>.</sub>	Asn	Lys	Gly	Val		Asn	Gly	Phe	Pro	Ser	
65					70					75					80	
		•							_							
					gtt										-	288
Asn	Leu	IIe	ГÀв		Val	GIu	Leu	Leu		ГÀЗ	Ser	Phe	Asn		Met	
				85					90			٠		95	٠	
224	200	aat	~~~	224	a++	,	++-			~~-					# - h	226
Tue	Thr	Dro			att							gac	Dre	get	The	336
пуъ	1111	PIO		ASII	Ile	Mec	ьеu		Arg	стЛ	дан	Asp		Ala	Tyr	
•			100		•			105					110			
tta	aaa	aca	gaa	+++	caa	aac	act	ctt	ctt	aat	tca	aat	aat	aca	atť	384
					Gln					•						304
	2	115					120					125	<i></i>		110	
						•										
aat	aaa	aco	act	ttt:	gaa	aaσ	act:	aaa	act	aag	+++	tta	aat	aaa	gat	432

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr gct atc aat cct aaa gaa ttc aag cgt cga cgt aga aag aaa cgt aga Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Lys Lys Arg Arg cag cgt aga cgt cac cac cac cac cac gtc gac tcg agc ggc cgc Gln Arg Arg Arg His His His His His Val Asp Ser Ser Gly Arg

245 250 255

atc gtg act gac tga 783

Ile Val Thr Asp

260

<210> 30

<211> 260

<212> PRT

<213> Artificial Sequence

5

<220>

<223> Sequence of C3Basic2: includes sequences from ADP-ribosyl-transf erase C3 (Clostridium botulinum) and a sequence encoding a random basic amino acid sequence and a histidine tag.

10

15

<400> 30

1

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

. 20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
. 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Lys Lys Arg Arg 225 230 235 240

Gln Arg Arg His His His His His Val Asp Ser Ser Gly Arg
245 250 255

Ile Val Thr Asp

260

<210> 31 <211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Reverse HIV-1 Tat amino acid sequence of C3Basic3

<400> 31

Arg Arg Lys Gln Arg Arg Lys Arg Arg

1 5

<210> 32

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a reverse HIV Tat sequence in C3Basic3

<400> 32

agaaggaaac aaagaagaaa aagaaga

27

<210> 33

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a reverse HIV Tat sequence in C3Basic3

<400> 33

tcttcctttg tttcttcttt ttcttct

27

<210> 34

<211> 771

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic3: includes sequences from ADP-ribosyl tranfer ase C3 (C. botulinum) and a sequence encoding a reverse HIV-1 Tat amino acid sequence and a Histidine tag

<220>

<221> CDS

<222> (1)..(771)

<223>

<400> 34

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

48

Gly	Ser	Ser	Arg	Val	Asp	Leu	Gln	Ala	Cys	Asn	Ala	Tyr	Ser	Ile	Asn ,	
1				5					10					15		
caa.	aag	gct	tat	tca	aat	act	tac	cag	gag	ttt	act	aat	att	gat	caa	96
Gln	Гуs	Ala	Tyr	Ser	Asn	Thr	Tyr	Gln	Glu	Phe	Thr	Asn	Ile	Asp	Gln	
			20					25					30			
				•												
gca	aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	144
Ala	Lys	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	Lys	Lys	Tyr	Gly	Leu	Ser	Lys	-
		35		•			40					45				
tca	gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	192
Ser	Glu	Lys	Glu	Ala	Ile	Val	Ser	Tyr	Thr	Lys	Ser	Ala	Ser	Glu	Ile	
	50					55					60					
										-						
aat	gga	aag	cta	aga	caa	aat	aag	gga	gtt	atc	aat	gga	ttt	cct	tca	240
Asn	Gly	Lys	Leu	Arg	Gln	Asn	Lys	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	
65					70					75					80	
aat	tta	ata	aaa	caa	gtt	gaa	ctt	tta	gat	aaa	tct	ttt	aat	aaa	atg	288
Asn	Leu	Ile	Lys	Gln	Val	Glu	Leu	Leu	Asp	Lys	Ser	Phe	Asn	Lys	Met	
				85					90				•	95		
															•	
aag	acc	cct	gaa	aat	att	atg	tta	ttt	aga	ggc	gac	gac	cct	gct	tat	336
ГÀЗ	.Thr	Pro	Glu	Asn	Ile	Met	Leu	Phe	Arg	Gly	Asp	Asp	Pro	Ala	Tyr	
			100					105					110			
•																
tta	gga	aca	gaa	ttt	caa	aac	act	ctt	ctt	aat	tca	aat	ggt	aca	att	384
T	<b>~</b> 1	mb x	<i>α</i> 3	Dhe	Gln	λen	Thr	T.211	T.011	702	Cor	λen	Gly	Thr	Tle	

115 120 125

							طعمة									422
									gct	_						432
Asn	Lys	Thr	Ala	Phe	Glu	ГÀв	Ala	Lys	Ala	Lys	Phe	Leu	Asn	ГÀЗ	Asp	
	130					135				•	140					•
aga	ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtt	tct	caa	480
Arg	Leu	Glu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	Val	Ser	Gln	
145					150					155					160	
ttt	gca	gga	aga	cca	atįt	att	aca	aaa	ttt	aaa	gta	gca	aaa	ggc	tca	528
Phe	Ala	Gly	Arg	Pro	İle	Ile	Thr	Lys	Phe	Lys	Val	Ala	Lys	Gly	Ser	
				165		•			170					175		
aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	cag	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Gln	Gly	Gln	Leu	Glu	
			180					185					190			
										,						
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg	624
Met	Leu	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu	
		195					200					205				
			٠													
tct	tct	gat	ggt	aaa	caa	ata	ata	att	aca	.gca	aca	atg	atg	ggc	aca	672
Ser	Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr	
	210					215			•		220					
											-				٠	
gct	atc	aat	cct	aaa	gaa	ttc	aga	agg	aaa	caa	aga	aga	aaa	aga	aga	720
Ala	Ile	Asn	Pro	Lys	Glu	Phe	Arg	Arg	Lys	Gln	Arg	Arg	Lys	Arg	Arg	
225					230					235			-	_	240	

56/84

Cac cac cac cac cac gtc gac tcg agc ggc cgc atc gtg act gac

768

His His His His His Val Asp Ser Ser Gly Arg Ile Val Thr Asp

tga 771

250

255

<210> 35

<211> 256

<212> PRT

<213> Artificial Sequence

245

<220>

<223> Sequence of C3Basic3: includes sequences from ADP-ribosyl tranfer ase C3 (C. botulinum) and a sequence encoding a reverse HIV-1 Tat amino acid sequence and a Histidine tag

<400> 35

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro. Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg 225 230 235 240

His His His His His Val Asp Ser Ser Gly Arg Ile Val Thr Asp

245 250 255

<210> 36

<211> 887

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT: includes sequences from ADP-ribosyl transfer ase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<220>

<221> CDS

<222> (1)..(747)

20

<223>

<400> 36

50

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

caa aag gct tat tca aat áct tac cag gag ttt act aat att gat caa 96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln

25

30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile

60/84

60.

55

aat gga a	aag cta	aga caa	aat aag	gga gt	tt atc	aat gg	ga ttt	cct	tca	240
Asn GIy	Lys Leu	Arg Gln	Asn Lys	Gly Va	al Ile	Asn G]	ly Phe	Pro	Ser	
65		70			75				80	
aat tta	ata aaa	caa gtt	gaa ctt	tta g	at aaa	tct tt	t aat	aaa	atg	288
Asn Leu	Ile Lys	Gln Val	Glu Lev	Leu A	sp Lys	Ser Ph	ne Asn	Lys	Met	
		85		9(	0			95		•
aag acc	cct gaa	aat att	atg tta	ttt ag	ga ggc	gac ga	ac cct	gct	tat	336
Lys Thr	Pro Glu	Asn Ile	Met Lev	Phe A	rg Gly	Asp As	sp Pro	Ala	Tyr	
	100			105			110			
								٠		
tta gga	aca gaa	ttt caa	aac act	ctt c	tt aat	tca aa	at ggt	aca	att .	384
Leu Gly	Thr Glu	Phe Gln	Asn Thr	Leu L	eu Asn	Ser As	sn Gly	Thr	Ile .	
:	115		120	ı		12	25	•		
•										
aat aaa	acg gct	ttt gaa	aag gct	aaa g	ct aag	ttt tt	ta aat	aaa	gat	432
Asn Lys '	Thr Ala	Phe Glu	Lys Ala	Lys A	la Lys	Phe Le	eu Asn	Lys	Asp	
130			135			140				
aga ctt	gaa tat	gga tat	att agt	act to	ca tta	atg aa	at gtt	tct	caa	480
Arg Leu	Glu Tyr	Gly Tyr	Ile Ser	Thr S	er Leu	Met As	sn Val	Ser	Gln	
145		150			155				160	
			•							
ttt gca	gga aga	cca att	att aca	aaa t	tt aaa	gta go	ca aaa	ggc	tca	528
Phe Ala	Gly Arg	Pro Ile	Ile Thr	Lys P	he Lys	Val Al	la Lys	Gly	Ser	
		165		1	70			175		

aag	gca	gga	tat	att	gac	cct	att	agt	gct	ttt	gca	gga	caa	ctt	gaa	576
Lys	Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Ala	Gly	Gln	Leu	Glu	
			180					185	٠				190			÷
										•						
atg	ttg	ctt	cct	aga	cat	agt	act	tat	cat	ata	gac	gat	atg	aga	ttg	624
Met	Leụ	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu	
		195			_		200					205				
			_		-											
tct	tct	gat	ggt	aaa	caa	ata	ata	att	aca	gca	aca	atg	atg	ggc	aca	672
Ser	Ser	Asp	Gly	ГÀв	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr	
	210					215					220					
gct	atc	aat	cct	aaa	gaa	ttc	gtg	atg	aat	ccc	gca	aac	gcg	caa	ggc	720
Ala	Ile	Asn	Pro	Lys	Glu	Phe	Val	Met	Asn	Pro	Ala	Asn	Ala	Gln	Gly	
225					230					235					240	
aga	cat	aca	ccc	ggt	acc	aga	ctc	tag	agc	taga	gaa	ggag	tttc	ac		767
Arg	His	Thr	Pro	Gly	Thr	Arg	Leu									
				245	•											
											•					
ttc	aatc	gct	actt	gacc	cg t	cggc	gaag	g at	cgag	atcg	ccc	acgc	cct	gtgc	ctcacg	827
gag	cgcc	aga	taaa	gatt	tg g	ttcc	agaa	t cg	gcgc	atga	agt	ggaa	gaa	ggag	aactga	887
•																
<21	0 >	37														
<21	1>	248							•							
<21	2>	PRT														
<21	.3>	Arti	fici	al S	eque	nce										

<220>

<223> Sequence of C3APLT: includes sequences from ADP-ribosyl transfer ase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<400> 37

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn

1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys

35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser

70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met

95 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile

115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly

225 230 235 240

Arg His Thr Pro Gly Thr Arg Leu

245

<210> 38

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of C3APLT in pET vector

<400> 38

ggatctggtt ccgcgtcata tgtctagagt cgacctg 37

. <210> 39

<211> 32

<212> DNA

<213>	Artificial Sequence	
<220>		
<223>	Oligonucleotide used in the cloning of C3APLT in pET vector	
<400>	39	
cgcgga	tcca ttagttctcc ttcttccact tc	32
	•	
<210>	40	
<211>	24	
<212>	DNA .	
<213>	Artificial Sequence	
<220>		
<223>	Oligonucleotide used in the sequencing of C3APLT	
<400>	40	
aaatta	atac gactcactat aggg	24
<210>	41	
<211>	19	
<212>	DNA .	
<213>	Artificial Sequence	
<220>		
<223S	Oligonucleotide used in the sequencing of C3APLT	

<400> 41

gctagttatt gctcagcgg

1.9

<210> 42

<211> 888

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT in a pET vector: includes sequences from ADP
-ribosyl transferase C3 (Clostridium botulinum) and a sequence en
coding a proline rich region.

<220>

<221> CDS

<222> (1)...(744)

<223>

<400> 42

atg tct aga gtc gca ctg cag gca tgc aat gct tat tcc att aat caa

Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1 5 10 15

aag gct tat tca aat act tac cag gag ttt act aat att gat caa gca 96
Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala

20 25 30

aaa	gct	tgg	ggt	aat	gct	cag	tat	aaa	aag	tat	gga	cta	agc	aaa	tca		144
ГУs	Ala	Trp	Gly	Asn	Ala	Gln	Tyr	гуз	ГЛЗ	Tyr	Gly	Leu	Ser	Lys	Ser	٠	
		35		•		-	40					45					
gaa	aaa	gaa	gct	ata	gta	tca	tat	act	aaa	agc	gct	agt	gaa	ata	aat		192
Glu	Lys	Glu	Ala	Ile	Val	Ser	Tyr	Thr	Lys	Ser	Ala	Ser	Glu	Ïle	Asn		
	50					55					60						
_									atc								240
Gly	ГÀЗ	Leu	Arg	Gln	Asn	Lys	Gly	Val	Ile	Asn	Gly	Phe	Pro	Ser	Asn		
65					70					75			•		80		
							٠										
				•					aaa								288
Leu	Ile	Lys	Gln		Glu	Leu	Leu	Ąsp	Lys	Ser	Phe	Asn	Lys		Lys		
				85					90	٠				95			
																	226
		_							ggc								336
Thr	Pro	G1u		11e	Met	ьeu	Pne		Gl3	Asp	Asp	PLO			пец		
	•		100					105					110				•
						20+	att	att	aa+	tas	22 <b>+</b>	aat	202	att	aat		384
gga									aat Asn								501
GTĀ	1111	115		GIII	ABII	1111	120		, A011	DCI	2101	125					•
		113															
222	acc	ac⊧	ttt	gaa	aac	get	aaa	act	aac	ttt	tta	aat	aaa	gat	. aga		432
	•								Lys								
-,, -	130				<b>.</b> -	135			-		140		_	-			

							_			_						480
ctt	gaa	tat	gga	tat	att	agt	act	tca	tta	atg	aat	gtt	tct	caa	בבנ	480
Leu	Gľu	Tyr	Gly	Tyr	Ile	Ser	Thr	Ser	Leu	Met	Asn	.Val	Ser	Gln	Phe	•
145					150					155					160	
gca	gga	aga	cca	att	att	aca	aaa	ttt	aaa	gta	gca	aaa	ggc	tca	aag	528
Ala	Gly	Arg	Pro	Ile	Ile	Thr	Lys	Phe	Гуs	Val	Ala	Lys	Gly	Ser	Lys	
				165					170	•				175		
_								gct								576
Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Ala	Gly	Gln	Leu	Glu	Met	
			180					185					190			
											•					
tta	ctt	cct	aga	cat	aqt	act	tat	cat	ata	gac	gat	atg	aga	ttg	tct	624
								His								
ьеu	ьеи		Arg	птв	per	TIIT		mis	110	мор	nop					
		195					200					205				
tct	gat	ggt	aaa	caa	ata	ata	att	aca	gca	aca	atg	atg	ggd	aca	gct	672
Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thx	Ala	Thr	Met	Met	Gly	Thr	Ala	
	210					215					220	)				
		•														
															aga	720
Ile	Asn	Pro	Lys	Glu	Phe	Val	Met	Asn	Pro	Ala	Asr	a Ala	Glr	Gly	Arg	
225					230					235	;				240	
cat	aca	. ccc	gat.	acc	aga	cto	: taq	ago	taga	ıgaa	ggag	tttc	ac t	tcaa	tcgct	774
								_	•	-						
Hls	ınr	Pro	Gly			, nec	•				•					
				245	i											

acttgacccg tcggcgaagg atcgagatcg cccacgccct gtgcctcacg gagcgccaga

taaagatttg gttccagaat cggcgcatga agtggaagaa ggaggactaa ctga

888

<210> 43

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Sequence of C3APLT in a pET vector: includes sequences from ADP
 -ribosyl transferase C3 (Clostridium botulinum) and a sequence en
 coding a proline rich region.

<400> 43

Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1 5 10 15

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala
20 25 30

Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser

35 40 45

Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn

50 55 60

Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn 65 70 75 80

Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
85 90 95

Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
100 105 110

Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn
115 120 125

Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg
130 135 140

Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe 145 150 155 160

Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys

165 170 175

Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met

180 185 190

Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser

195 200 205

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
210 215 220

Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240

His Thr Pro Gly Thr Arg Leu

245

<210> 44

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of Antennapedia from C3APL

<400> 44

Val Met Glu Ser Arg Lys Arg Ala Arg Gln Thr Tyr Thr Arg Tyr Gln

1 5 10 15

Thr Leu Glu Leu Glu Lys Glu Phe His Phe Asn Arg Tyr Leu Thr Arg
20 25 30

Arg Arg Ile Glu Ile Ala His Ala Leu Cys Leu Thr Glu Arg Gln
35 40 45

Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys Glu Asn
50 55 60

<210> 45

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of Antennapedia from C3APS

<400> 45

Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys

1 5 10 15

Val Asp Ser

<210> 46

<211> 60

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of HIV-1 Tat from C3-TL

<400> 46

Lys His Pro Gly Ser Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys

1 5 10 15

Lys Lys Cys Cys Phe His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu 20 25 30

Gly Ile Ser Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg Ala His Gln
35 40 45

Asn Ser Gln Thr His Gln Ala Ser Leu Ser Lys Gln

50 55 60

<210> 47

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of HIV-1 Tat from C3-TS

<400> 47

Tyr Gly Ala Lys Lys Arg Arg Gln Arg Arg Arg Val Asp Ser Ser Gly

L

5

10

15

Pro His Arg Asp

20

<210> 48

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of the proline rich region of C3APLT

<400> 48

Val Met Asn Pro Ala Asn Ala Gln Gly Arg His Thr Pro Gly Thr Arg

1 5 10 15

Leu

<210> 49

<211> 10

. <212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence fused to C3 protein to created C3 Tat-short

<400> 49

Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg

· 1 5 10

<210> 50

<211> 8

<212> PRT

<213> Artificial Sequence

<220> <223> Reverse sequence of Tat amino acids fused to C3 protein to created C3Basic3 <400> 50 Arg Arg Gln Arg Arg Lys Lys Arg 1 <210> 51 <211> 12 <212> PRT <213> Artificial Sequence <220> <223> transport peptide rich in Proline <400> 51 Ala Ala Val Leu Leu Pro Val Leu Leu Ala Ala Pro 1 5 10

<210> 52

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Sperm fertiline alpha peptide

<400> 52

His Pro Ile Gln Ile Ala Ala Phe Leu Ala Arg Ile Pro Pro Ile Ser

1 5 10 15

Ser Ile Gly Thr Cys Ile Leu Lys

20

<210> 53 ·

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence from the C3Basic3

<400> 53

Arg Arg Lys Gln Arg Arg Lys Arg Arg

<210> 54

<211> 744

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3-07Q189A

<400> 54

atgtctagag tcgacctgca ggcatgcaat gcttattcca ttaatcaaaa ggcttattca 60 aatacttacc aggagtttac taatattgat caagcaaaag cttggggtaa tgctcagtat 120 aaaaagtatg gactaagcaa atcagaaaaa gaagctatag tatcatatac taaaagcgct 180 agtgaaataa atggaaagct aagacaaaat aagggagtta tcaatggatt tccttcaaat ttaataaaac aagttgaact tttagataaa tcttttaata aaatgaagac ccctgaaaat .300 attatgttat ttagaggcga cgaccctgct tatttaggaa cagaatttca aaacactctt 360 cttaattcaa atggtacaat taataaaacg gcttttgaaa aggctaaagc taagttttta 420 aataaagata gacttgaata tggatatatt agtacttcat taatgaatgt ttctcaattt ' 480 gcaggaagac caattattac aaaatttaaa gtagcaaaag gctcaaaggc aggatatatt 540 gaccctatta gtgcttttgc aggagcactt gaaatgttgc ttcctagaca tagtacttat 600 catatagacg atatgagatt gtcttctgat ggtaaacaaa taataattac agcaacaatg 660 atgggcacag ctatcaatcc taaagaattc gtgatgaatc ccgcaaacgc gcaaggcaga 720 744. catacacccg gtaccagact ctag

<210> 55

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of C3-07Q189A

<400> 55 Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln · 1 Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser · Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Ala Leu Glu Met 

Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala

210 ' 215 220

Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240

His Thr Pro Gly Thr Arg Leu

245

<210> 56

<211> 783

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of BA-05

<400> 56

ggatcctcta gagtcgacct gcaggcatgc aatgcttatt ccattaatca aaaggcttat 60 tcaaatactt accaggagtt tactaatatt gatcaagcaa aagcttgggg taatgctcag 120 tataaaaagt atggactaag caaatcagaa aaagaagcta tagtatcata tactaaaagc 180 gctagtgaaa taaatggaaa gctaagacaa aataagggag ttatcaatgg atttccttca 240 aatttaataa aacaagttga acttttagat aaatctttta ataaaatgaa gacccctgaa 300 aatattatgt tatttagagg cgacgaccct gcttatttag gaacagaatt tcaaaacact 360 cttcttaatt caaatggtac aattaataaa acggcttttg aaaaggctaa agctaagttt 420 ttaaataaag atagacttga atatggatat attagtactt cattaatgaa tgtttctcaa 480 tttgcaggaa gaccaattat tacaaaattt aaagtagcaa aaggctcaaa ggcaggatat 540 attgacccta ttagtgcttt tgcaggacaa cttgaaatgt tgcttcctag acatagtact 600 tatcatatag acgatatgag attgtcttct gatggtaaac aaataataat tacagcaaca 660

acgacgggca	cagccaccaa	tectaaagaa	cccgcgacga	acceegeaaa	egegeaagge	120
agacatacac	ccggtaccag	actctagagc	tagagaagga	gtttcacttc	aatcgctact	780
tga						783

<210> 57

<211> 247

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of pET9a-BA-07

70

<400> 57

· 65

Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln

1 5 10 15

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala

20 25 30

Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
35 40 45

Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
50 55 60

Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn

Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys

85 90 95

75

, 80

Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
.
100 105 110

Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn

125 120 115 Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg 140 135 Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe 150 155 Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys 170 . 165 Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met . 185 180 Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser 200 205 195 Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala 215 220 210 Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg 240 225 230 235 His Thr Pro Gly Thr Arg Leu 245

<210> 58

<211> 35

<212> DNA

<213> Artificial Sequence

<220> .

<223> primer

<400> 58

cctaaagaat tcgtgatgaa tcccgcaaac gcgca

- <210> 59
- <211> 35
- <212> DNA
- <213> Artificial Sequence
- <220>
- <223> primer
- <400> 59

tgcgcgtttg cgggattcat cacgaattct ttagg

. 35